

CLAIMS

1. A coreless linear motor comprising:

a magnetic field system that includes a plurality of permanent magnets arranged in line, polarities of the adjacent permanent magnets being different from each other; and

armatures that are disposed to face the rows of the permanent magnets through a magnetic gap and have coreless-type armature coils formed of a plurality of coil groups arranged, wherein

when one of the magnetic field system and the armatures serves as a stator and the other serves as a movable member, the magnetic field system and the armatures relatively move,

the magnetic field system is constructed so that two magnet rows of permanent magnets face each other,

the armatures are disposed so that two rows of armature coils are arranged between the two rows of magnets in the magnetic field system,

at least one end of the two rows of armature coils in the direction perpendicular to the direction of a magnetic gap between the rows of magnet branches into two parts and a substrate for connecting the coils is inserted into the gap between the branching parts,

the armature coils and the substrate are fixed by

mold resin, and

the permanent magnet takes the profile of the armature.

2. The coreless linear motor according to claim 1, wherein

the substrate is an aluminum substrate formed by applying an insulating film and a copper-foil pattern on an aluminum plate.

3. A canned linear motor comprising:

a magnetic field system that includes a plurality of permanent magnets arranged in line, polarities of the adjacent permanent magnets being different from each other;

armatures that are disposed to face the rows of the permanent magnets through a magnetic gap and have coreless-type armature coils formed of a plurality of coil groups arranged;

a can that seals the armature coils; and

a refrigerant path that flows a refrigerant between the armature coils and the can, wherein

the magnetic field system is constructed so that two magnet rows of permanent magnets face each other,

the armatures are disposed so that two rows of

armature coils are arranged between the two rows of magnets in composing the magnetic field,

at least one end of the two rows of armature coils in the direction perpendicular to the direction of a magnetic gap between the rows of magnets branches into two parts and a substrate for connecting the coils is inserted into the gap between the branching parts,

the armature coils and the substrate are fixed by mold resin, and

the permanent magnet takes the profile of the armature.

4. The canned linear motor according to claim 3, wherein the substrate is an aluminum substrate formed by applying an insulating film and a copper-foil pattern on an aluminum plate.